

Effect of PPAR γ His447His polymorphism on oocytes and fertilization in IVF

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*Abstract

Background: Genetic factors play an important role in women fertility and embryonic development which may contribute to the efficacy of assisted reproduction techniques.

Objective: The aim of this study was to investigate the effect of peroxisome proliferator-activated receptor γ (PPAR γ) His447His polymorphism on oocytes and fertilization in women undergoing IVF.

Methods: Blood samples were obtained from 98 IVF patients referred to Tabriz Alzahra Hospital. Samples were analyzed for the PPAR γ gene polymorphism using polymerase chain reaction-restriction fragment length polymorphism-based methods. Multivariate analyses were used to test the independence of associations between the number of mature oocytes and the number of oocytes fertilized as outcome variables and polymorphism of PPAR γ gene.

Findings: Correlation analysis showed a significant inverse correlation between the age of women and the number of mature oocytes retrieved ($r=-0.37$, $P=0.001$) and oocytes fertilized ($r=-0.25$, $P=0.015$). The ratio of the number of mature oocytes to oocytes fertilized was significantly ($P<0.05$) increased in carriers of the rare alleles than homozygous wild-type genotypes. The association of His447His polymorphism ($P=0.003$) remained statistically significant after adjustment for confounding factors in the multivariate analyses.

Conclusion: This study presents evidences that the His447His polymorphism of PPAR γ plays an important independent role in fertilization in vitro and thus possibly in female fertility.

Keywords: in vitro Fertilization, PPAR, His447His Polymorphism

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